

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****In re Patent Application of:****OHZEKI : Group Art Unit: 1752****Application No. 10/633,253 : Examiner: Thorl Chea****Filed: August 4, 2003****For: PHOTOTHERMOGRAPHIC MATERIAL****DECLARATION UNDER 37 C.F.R. §1.132****Honorable Commissioner of Patents and Trademarks****Alexandria, VA 22313-1450****Sir:****I, Tomoyuki Ohzeki, do declare and state as follows:****I graduated from Waseda University with a Master's Degree in Science and Engineering, Department of Chemistry in March 1988;****I joined Fuji Photo Film Co., Ltd. in April 1988, and since 1988, I have been engaged in research and development in the field of silver halide emulsions and photothermographic materials at Digital & Imaging Material Laboratories;****I am familiar with the Office Action of November 2, 2004, and understand that the Examiner has rejected Claims 1-3, 7, and 10-20 as being unpatentable over the combination of prior art references.****I am an inventor of the invention. I make the following statement in**

order to clarify the advantageous effects obtained by present invention.

### *Comparative Experiment 1*

Sample Nos. 105 to 109 disclosed in Example 1 of Okada (US6,120,983) were prepared in the same manner as described in Okada. Sample Nos. 1 to 5 were prepared in the same manner as the preparation of Sample Nos. 105 to 109 of Okada except that silver iodobromide grains having a silver iodide content of 40 mol% were used in place of the silver iodobromide grains having a silver iodide content of 2 mol%. Sample Nos. 6 to 9 were prepared in the same manner as the preparation of Sample Nos. 105 of Okada except that Compound No. 1 as an adsorptive reducing agent was changed to Compound No. 7, 8, 9, and 23 respectively. Sample Nos. 10 to 13 were prepared in the same manner as the preparation of Sample Nos. 105 of Okada, except that Compound No. 1 as an adsorptive reducing agent was changed to Compound Nos. 7, 8, 9, and 23 respectively, and that silver iodobromide grains having a silver iodide content of 40 mol% were used in place of the silver iodobromide grains having a silver iodide content of 2 mol%. Compounds Nos. 7, 8, 9, and 23 are shown in columns 13-15 of Okada, and each have a hydroxyurea group as a reducing group and a mercapto group, which is adsorptive to silver halide. Therefore, Compounds Nos. 7, 8, 9, and 23 are compounds having groups that are adsorptive to silver halide and groups that reduce silver halide.

The obtained samples were processed in the same manner as described in Example 1 of the present application (US10/633,253), and their photographic characteristics were evaluated in the same manner as described

in Example 1 of the present application (US10/633,253). The obtained results are shown in Table 1.

As is apparent from Table 1, the combination of silver halide having a silver iodide content of 40 mol% or higher and a compound having a group that is adsorptive to silver halide and a group that reduces silver halide, achieves unexpectedly superior prior-to-use storability and post-development image stability. This combination is disclosed in new claim 21. When the characteristics of Sample Nos. 10 to 13 are compared with the characteristics of Sample Nos. 1 to 5 and Sample Nos. 6-9, the unexpected synergistic effect is clearly recognizable.

Table 1

Sample No.	AgI content (mol%)	Compound No. of adsorptive reducing agent	Prior-to-use storability ( $\Delta S$ )	Post-development image stability ( $\Delta D_{min}$ )
105 (Okada)	2	1	25	0.22
106 (Okada)	2	2	22	0.22
107 (Okada)	2	3	19	0.23
108 (Okada)	2	4	23	0.19
109 (Okada)	2	5	21	0.21
1 (Comp. Ex.)	40	1	52	0.00
2 (Comp. Ex.)	40	2	43	0.01
3 (Comp. Ex.)	40	3	41	0.02
4 (Comp. Ex.)	40	4	49	0.01
5 (Comp. Ex.)	40	5	47	0.00
6 (Comp. Ex.)	2	7	18	0.23
7 (Comp. Ex.)	2	8	22	0.21
8 (Comp. Ex.)	2	9	21	0.20
9 (Comp. Ex.)	2	23	25	0.24
10 (Invention)	40	7	5	0.00
11 (Invention)	40	8	8	0.00
12 (Invention)	40	9	7	0.00
13 (Invention)	40	23	9	0.00

*Comparative Experiment 2*

Sample Nos. 102-1 to 102-4 were prepared in the same manner as the preparation of Sample No. 102 in Example 2 of Katoh (US 5,968,725), except that silver iodobromide having a silver iodide content of 40 mol% was used in place of the silver iodobromide having a silver iodide content of 8 mol% in Sample Nos. 102-3 and 102-4, and that the compound I-1 was changed to the compound I-23 having a  $\gamma$ -lactam ring (in Sample Nos. 102-1 and 102-3) or a compound I-23' having the same structure as I-23 except that the  $\gamma$ -lactam ring is changed to  $\beta$ -lactam ring (in Sample Nos. 102-2 and 102-4).

The prepared samples were processed in the same manner as in Example 1 of the present application (US10/633,253), and their photographic characteristics were evaluated in the same manner as in Example 1 of the

present application (US10/633,253). The results are shown in Table 2 below.

As is clear from Table 2, when a compound having a  $\beta$ -lactam ring is used in combination with silver halide having a silver iodide content of 40 mol% or higher, the resultant photothermographic material exhibits unexpectedly superior prior-to-use storability and post-development image stability. In other words, the invention claimed in new claim 42 which uses a compound having a  $\beta$ -lactam ring realizes unexpectedly superior prior-to-use storability and post-development image stability.

Table 2

Sample No.	AgI content (mol%)	Compound used in place of compound I-1	Prior-to-use storability ( $\Delta S$ )	Post-development image stability ( $\Delta D_{min}$ )
102-1 (Comp. Ex.)	8	1-23 ( $\gamma$ -lactam)	35	0.32
102-2 (Comp. Ex.)	8	1-23' ( $\beta$ -lactam)	32	0.35
102-3 (Comp. Ex.)	40	1-23 ( $\gamma$ -lactam)	58	0.02
102-4 (Invention)	40	1-23' ( $\beta$ -lactam)	10	0.00

**Conclusion:**

The photothermographic materials of the claimed inventions exhibit unexpectedly superior prior-to-use storability and post-development image stability.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that

willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: February 18, 2005

Tomoyuki Ohzeki

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